

**CLAIMS**

1. A method of fitting an auditory stimulation system having a plurality of channels to a recipient, the method comprising the steps of:
  - 5 establishing an initial current level profile representative of a current level setting spanning across at least some of the plurality of channels; and
  - adjusting parameters of the initial current level profile in the presence of a stimulation signal.
- 10 2. A method of fitting an auditory stimulation system of claim 1 further comprising the step of:
  - determining the desired parameters representative of an optimum current level profile corresponding to a recipient's threshold and/or maximum comfort current level profile.
- 15 3. A method of fitting an auditory stimulation system as claimed in claim 1 further comprising the steps of establishing the initial current level profile from measurements of the ECAP thresholds for each or at least some of the channels of the auditory stimulation system, and establishing a current level profile based upon the measurements.
- 20 4. A method of fitting an auditory stimulation system in claim 1 further comprising the step of establishing the initial current level profile from measurements of the ECAP thresholds for at least one channel of the auditory stimulation system, with the full profile being interpolated from the measurements.
- 25 5. A method of fitting an auditory stimulation system as claimed in claim 1 further comprising the steps of establishing the initial current level profile by performing a statistical analysis of recipient mapping data over a number of recipients and subsequently using this analysis to form an initial current level profile for a particular recipient.
- 30 6. A method of fitting an auditory stimulation system as claimed in claim 1 further comprising the steps of establishing the initial current level profile by performing psychophysical measurements of the recipient in combination with statistical analysis

of recipient mapping data over a number of recipients, and thereby determine a suitable initial current level profile for a particular recipient.

7. A method of fitting an auditory stimulation system as claimed in claim 1  
5 wherein the parameters of the initial current level profile being adjusted include one or a combination of shift, tilt and curvature.

8. A method of fitting an auditory stimulation system as claimed in claim 7  
wherein the shift parameter is adjusted by adding/subtracting a fixed amount of current  
10 level from each individual channel in the profile.

9. A method of fitting an auditory stimulation system as claimed in claim 7  
wherein the tilt parameter is adjusted by adding/subtracting a derived amount of current  
level from each individual channel in the profile.

15 10. A method of fitting an auditory stimulation system as claimed in claim 7  
wherein the curvature parameter is adjusted by adding/subtracting a derived amount of current level from each individual channel in the profile in a non-uniform manner.

20 11. A method of fitting an auditory stimulation system as claimed in claim 9 or 10  
wherein the amount of current added/subtracted from each individual channel varies  
dependent upon whether the channel is positioned in a basal region or in an apical  
region of the cochlea.

25 12. A method of fitting an auditory stimulation system as claimed in claim 11  
wherein the current level for channels positioned in the apical region of the cochlea is  
increased and the current level for channels positioned in the basal region of the  
cochlea is decreased a derived amount.

30 13. A method of fitting an auditory stimulation system as claimed in claim 11  
wherein the current level for channels positioned in the apical region of the cochlea is  
decreased and the current level for channels positioned in the basal region of the  
cochlea is increased a derived amount.

35 14. A method of fitting an auditory stimulation system as claimed in claim 1  
wherein the stimulation signal is derived from a broadband sound signal.

15. A method of fitting an auditory stimulation system as claimed in claim 14 wherein the broadband sound signal is a live speech signal.
16. A method of fitting an auditory stimulation system as claimed in claim 14  
5 wherein the broadband sound signal is an artificial signal.
17. A method of fitting an auditory stimulation system as claimed in claim 14 wherein the broadband sound signal is a recorded signal.
- 10 18. A method of fitting an auditory stimulation system as claimed in claim 1 wherein the step of adjusting parameters of the initial current level profile in the presence of a stimulation signal includes adjusting the shift parameter of the initial current level profile until the stimulation signal can just be detected by the recipient, indicative of the stimulation reaching a threshold level.  
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19. A method of fitting an auditory stimulation system as claimed in claim 16 wherein following establishing the stimulation has reached a threshold level, the tilt parameter of the current level profile is adjusted until an optimal threshold level is perceived by the recipient.
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20. A programming apparatus adapted to be interfaced with an auditory stimulation system having a plurality of channels to allow manipulation of threshold (T) and comfort (C) levels of the system, the programming apparatus comprising:  
25 a graphical display means adapted to display a graphical representation of the current profile of the channel array; and  
means for adjusting a current level setting of the current profile of the channel array.
21. A programming apparatus as claimed in claim 20 wherein an initial current  
30 level profile representative of the current level setting spanning across at least some of the plurality of channels is established.
22. A programming apparatus as claimed in claim 21 wherein parameters of the initial current level profile are adjusted in the presence of a stimulation signal.

23. A programming apparatus as claimed in claim 22 wherein the initial current level is established from measurements of the ECAP thresholds for each or at least some of the channels of the auditory stimulation system, and a current level profile is established based upon the measurements.

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24. A programming apparatus as claimed in claim 22 wherein the initial current level profile is established from measurements of the ECAP thresholds for at least one channel of the auditory stimulation system, with the full profile being interpolated from the measurements.

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25. A programming apparatus as claimed in claim 22 wherein the initial current level profile is established by performing a statistical analysis of recipient mapping data over a number of recipients, the analysis subsequently being used to form the initial current level profile for a particular recipient.

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26. A programming apparatus as claimed in claim 22 wherein the initial current level profile is established by performing psychophysical measurements of the recipient in combination with statistical analysis of recipient mapping data over a number of recipients, thereby determining a suitable initial current level profile for a particular recipient.

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27. A programming apparatus as claimed in claim 22 wherein the parameters of the initial current level profile being adjusted include one or a combination of shift, tilt and curvature.

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28. A programming apparatus as claimed in claim 27 wherein the shift parameter is adjusted by adding/subtracting a fixed amount of current level from each individual channel in the profile.

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29. A programming apparatus as claimed in claim 27 wherein the tilt parameter is adjusted by adding/subtracting a derived amount of current level from each individual channel in the profile.

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30. A programming apparatus as claimed in claim 27 wherein the curvature parameter is adjusted by adding/subtracting a derived amount of current level from each individual channel in the profile in a non-uniform manner.

31. A programming apparatus as claimed in claim 29 or claim 30 wherein the amount of current added/subtracted from each individual channel varies dependent upon whether the channel is positioned in a basal region or in an apical region of the 5 cochlea.

32. A programming apparatus as claimed in claim 31 wherein the current level for channels positioned in the apical region of the cochlea is increased and the current level for channels positioned in the basal region of the cochlea is decreased a derived 10 amount.

33. A programming apparatus as claimed in claim 31 wherein the current level for channels positioned in the apical region of the cochlea is decreased and the current level for channels positioned in the basal region of the cochlea is increased a derived 15 amount.

34. A programming apparatus as claimed in claim 22 wherein the stimulation signal is derived from a broadband sound signal.

20 35. A programming apparatus as claimed in claim 34 wherein the broadband sound signal is a live speech signal.

36. A programming apparatus as claimed in claim 34 wherein the broadband sound signal is an artificial signal.

25 37. A programming apparatus as claimed in claim 34 wherein the broadband sound signal is a recorded signal.

38. A programming apparatus as claimed in claim 22 wherein the adjusted 30 parameters include the shift parameter of the initial current level profile, which shift parameter is adjusted until the stimulation signal can just be detected by the recipient, indicative of the stimulation reaching a threshold level.